DOCUMENT RESUME

ED 046 669 RE 003 289

AUTHOR	Taschow, Horst G.
TITLE	Reading in the Subject Matter Areas.
INSTITUTION	Saskatchewan Univ., Regina.
PUB DATE	Dec 70
NOTE	13p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	*Content Reading, *Reading Instruction, *Reading Readiness, *Reading Skills, Teacher Role, *Vocabulary Development

ABSTRACT

Content-area reading begins in grade 1 and is a gradual and continuous development of the reading skills through the grades and beyond. For the student to gain proficiency in this difficult and complex art, theoretical suggestions paired with actual classroom samples in content-area instruction are illustrated for the content-area teacher's use. For the content-area teacher, the essential factors and their relationships and interrelationships as well as their influences toward student success or failure in content-area reading-learning instruction are discussed. It is hoped by the author that when such an approach is more widely followed by the content-area teachers our young people will more readily appreciate and enjoy the act of reading and its results. Topics presented in this paper include the following: a definition of reading, reading and subject matter, reading readiness, background experiences, general and special vocabulary, setting purposes, and instructional reading levels. References are given. (Author/DE)

ED046669

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

READING IN THE SUBJECT MATTER AREAS

Horst G. Taschow, Ph.D.
Reading Education
University of Saskatchewan
Regina Campus, Regina

What is reading in the subject area? Why is reading in the subject area important? To whom is it important? What is the student's role in reading in the content area? What is the teacher's role? Is reading or is the subject area important? Which of the two is more important? Are reading and content area taught together or separate? Is the teacher who is obligated to teach subject area also obligated to teach reading? Those and many other questions could be asked to expedite inquiry of intent and purpose of the writer's deliberation on Reading in the Subject Matter Areas.

Reading Defined

To lay the foundation upon which ultimately all questions must be resolved is reading. What is reading? For purposes of mutual interaction between writer and readers of this treatise the following definition of reading is proposed: "Reading may be defined as a highly complex, purposeful, thinking process engaged in by the entire organism while acquiring knowledge, evolving new ideas, solving problems, or relaxing and recuperating through the interpretation of printed symbols"(6). This definition suggests that the reader reads for purpose, thinks, gives meaning to, and understands so that through reading content matter he gainfully learns, educes ideas, and/or solves given problems.

RE003 289

Reading and Subject Matter

It appears then that reading cannot be taught in isolation and cannot be separated from subject matter. Whatever is read, is subject matter. When, for instance, a first grader reads "Pepper ran up to a house"(2,35), the subject matter is Pepper, house, ran up to; when a third grader reads "The pitching got a little better after that, but the fielding didn't"(7), the subject matter is concerned with a specific type of sports; when a seventh grader reads "The statistics show that the Weather Bureau forecasts are right most of the time"(4), the subject matter relates to weather forecast; and when a grade eleven student reads "The Rush-Bagot Agreement of 1817, and the Convention of 1818, removed several serious disagreements between Britain and the United States"(1), history of the making of the New World appears to be its subject matter. Consequently it seems proper to state that there is no reading without subject matter and no subject matter without reading.

Reading may be said to act like a catalyst through which subject matter is communicated to the reader provided that he has sufficient and effective reading skills to negotiate successfully the complexity of the encoding and decoding process. Reading is so integrated and interrelated with any subject area and therefore with the total educational process that educational success requires successful reading. As evidenced in the reading literature students who fail in school have most often failed first in reading. This spells out to the subject area teacher that he is indeed a

teacher of reading and teaches reading whenever he teaches content area. While he does not need to be a trained reading teacher, he, nevertheless, should be knowledgeable of the interwoven relationships that exist between reading, subject area, and the entire learning process. He knows that whenever the reading ability lags behind the student's learning ability, he must appraise and probably readjust the quality of his teaching. No longer does he hold tha tacit assumption that students should have learned to read in the elementary grades or that learning to read is confined to the first three grades of formal reading instruction. Instead, he confesses to the necessity that reading must be taught and practiced throughout the total formal education and possibly beyond. As a student progresses through the grades, he needs to progress in his reading proficiency in order to keep pace with his growth and development.

It may be timely to ask what is left with the student when the content area teacher leaves the classroom? Nothing, but the textbook the student is required to read. But what happens to the student when he cannot read the textbook? Unfortunately, it is one of the venomous ingredients in the malpractice of today's education that many students are forced to learn subject matter from textbooks they cannot read. There are many subject area teachers who are faced with this dilemma, who want to help their students and do not know how.

In the light of the shockingly great number of students who cannot read their textbooks and for those content area teachers

who want to help, it may be appropriate to suggest some of the basic principles which are essential for subject area reading-learning instruction.

Reading Readiness

One such principle is Reading Readiness in the subject area. Reading Readiness must not be confused with motivation. Reading Readiness is much more. In fact, without having satisfied this principle to the utmost, teaching is a drudgery for both, teacher and student, as well as a crippling experience without joy, success, satisfaction and the rewarding feeling of accomplishment. It is, for instance, equal to going skiing without having the essential equipment. While the individual may be extrinsically and intrinsically motivated to do its best in skiing, he tries and the harder he tries the more he gets disillusioned and frustrated, or he tries and gives up. The same analogy applies to reading in content area without Reading Readiness. Although the student is motivated, he is yet not ready or adequately prepared to do the task.

Background Experiences

The psychology of Reading Readiness is a complex of several facets which are not separated but interrelated and therefore enhancing its complexity. One of the facets to be viewed here is Background Experience. Test yourself on background experience: John saw a cyprinoid. What is a cyprinoid? If you cannot answer this question while reading it, you are indeed deficient in this particular background experience. Try this one: From each lateral geniculate body the visual fibers go directly to the visual cortex

on the borders of the calcerine fissure of the same side. Is that at par with your own background experience? May be you need readi= ness or even more readiness in order to be able to give meaning to this passage? Relate this experience to the last unit lesson you have taught in your subject. May be your students have exper- ienced similar understanding difficulties. May be Reading Readi- ness is indeed an essential ingredient in the reading to learn process in content area. The above cited samples may also point out quite clearly that words in themselves have no meaning and that meaning comes from the reader's background experience. If one of the main purposes of reading in subject matter is to get meaning from the printed page, then student background experience must be firmly and consistently established. In order to get meaning from the printed page, the reader must bring meaning to the printed page, that is his direct or vicarious background experience; other- wise he may see and pronounce words, but with no understanding. This may also shed some light on the often used and heard command "Look it up in the dictionary!" Look up what? Meaning? A diction- ary gives definitions to which the reader must supply the meaning. To ask students to read of, and if necessary to look up in a dic- tionary or encyclopedia, Sumerians and their cuneiform writing, photosynthesis and its biological and chemical processes, an elec- tric lightbill, a trinomial and other content matters without having adequately prepared students' background experiences, invites fail- ure instead of success in content areas.

General and Special Vocabulary

Next to background experience is vocabulary. Words are units of thoughts without which one can neither read nor write. For greater reading-learning instruction in the content areas new or unknown words must be introduced and concepts formed. Particular attention merits the facts that students possess various kinds of vocabularies such as a listening, speaking, reading, and writing vocabulary. An individual's sum of words consists of his quantitative and qualitative general vocabulary as well as his special and technical vocabulary and his working knowledge of common English words used as specific terms.

When 'Dick and Jane are running', the word and is easily understood. But, when used to denote an arithmetic computation, the same word represents a special meaning in the sense of a technical term requesting the performance of an arithmetic function. The word 'table' stands for kitchen table, dining table and other tables in their concrete appearances. When, however, the same word, same in symbols and sound, is used in its abstract designation, the common word with its usual meaning does not help to understand the specific terms as in multiplication table, table of content, of chemical elements, of the metric system and of other similar usages. Examining scientific vocabulary, students meet non-technical words in the cloak of powerful technical terms: a shoulder blade is a scapula, a leafstalk a petiole, and a weatherman a meteorologist. To complicate reading-learning instruction, there

are many technical scientific words that have no simple equivalent in common English use such as hydrogen, digestion, photosynthesis, chlorophyll, and oxidation.

Attending briefly to reading-learning in Chemistry, students are confronted with the symbolic language which requires them to know (1) the symbols for the various elements and (2) a symbol as a representative of the name of the element. To add to its complexity in chemistry, expressions of relationships which most frequently appear in the vestige of formulas must be known and interpreted. When a student can translate the symbols NaCl into English words saying NaCl stands for sodium chloride (the technical term) which in common parlance is salt (non-technical term), he may have recalled it through rote memorization. In turn, this may be content learning on its surface. To start, however, actual work with NaCl in relationship to other chemical processes, the student must be able to reading into each symbol its maximum meaning. Thus NaCl must be interpreted as standing for one molecule of sodium chloride consisting of one atom of sodium and one atom of chlorine, 23 parts by weight of sodium and 35.5 parts by weight of chlorine, and 58.5 parts by weight of salt, which is the molecular or formula weight of sodium chloride(5). This performance may be indicative that the student has an adequate and essential working knowledge of symbols, formula, and valence as well as their relation- and interrelationships.

What are some of the reading abilities a student should demonstrate in mathematics? He needs functional command of technical

algebraic terms as in binomial and trinomial, of literal numbers, exponents, and operational symbols as in $x^2 + ax + b$, of arithmetic terms of sum, coefficient, and product, as well as the understanding of non-technical words as in first, second, and middle. If the student wants to work independently in mathematics, his proficiency in reading skills is of primary importance. He needs to gain mastery in the language of mathematics which requires more skill and knowledge in decoding than in computation(9).

Setting Purposes

The third factor pertaining to Reading Readiness in the content areas is setting a purpose. A purpose in silent or oral reading may be of a general or specific nature. If, for instance, students are given the directive to read pages 40 to 45, neither interest has been aroused nor any purpose has been given. In fact, all what the students know are two numbers to follow as called by the teacher. To this the students usually react by checking how long the reading is, how much print they need to cover, and how fast and superficially they can possibly comply with the requested task. A purpose, however, gives an individual the responsibility to work towards an outcome. A purpose is like a contract that requires fulfillment. Setting a purpose means to direct one's mind towards a prescribed task for which one is prepared.

To set a purpose a question is needed. A question demands an answer or, at least, a question initiates the search towards an answer. A question is like a powerful spark that starts the gears

of the individual's thinking apparatus to ignite brain cells which, in turn, spark other cells to bring forth results. From the psychological point of view a question does more than just arousing cell assemblies and phase sequences in the process of forming new brain associations in physiological terms. A question appears to unfold the individual's attention, to elicit his drive to seek answers, and to employ his ability to his maximum performance in keeping him alert till partial or final answers have been produced. This is the kind of input-output accomplishment that is desirable in content area reading-learning instruction.

The ability to set purposes must be taught to the students because it is learned tool. This activity and this skill are embedded in and grow out of teacher-student interactions which began by developing experiences and by building concepts around new and unknown words pertaining to the content. To set a purpose then is not alienated from 'getting ready to read' but is probably the final phase within Reading Readiness. The student's mental resources are refuelled, set, and ready to go to the prescribed goal clearly in sight. Keeping the goal or purpose in sight is paramount. Therefore, it is essential that each student knows the purpose which for recall assistance may be written on the chalkboard by the teacher or on individual paper by the student. Whenever his mind wants to drift off course, he can look back at the purpose and can independently reorientate himself to pursue the set goal. The purpose then must be within the reach of the student's

capacity, neither too difficult nor too easy. Any purpose that is too facile, too difficult, too complex, or too far-reaching will contribute to student boredom and/or frustration rather than to his success seeking attitude. To do just this in accordance with the student's psychological threshhold is one of the content teacher's most subtle task.

How can the content area teacher assist his students to set purposes? In the beginning a purpose originates from chapter titles or subchapter headings.

In a grade one, for example, in the Primer book the title "Fun For Pepper"(2,35) is a phrase that does neither challenge nor arouse student interest. In the form of a question, however, 'What is Fun for Pepper?' student interest is aroused and his mind challenged to seek an answer. The teaching then of how to set a purpose begins in grade one and is not reserved for later grades where boredom may have already overcast if not outgrown student interest as well as his enjoyment that may be in reading. Through the ascending grades, the ability to set purposes for the reading-learning instruction in content area must be just another learned tool towards student independence in the educational process. Gradually, the purposes will be phrased to a greater degree by the individual student to accommodate the goal-seeking within his life style than they will be set through teacher direction, which, ultimately, signifies his growth from a dependent to an independent student.

Instructional Reading Levels

To answer purposes through either silent or oral reading, printed materials are essential. These are usually textbooks or more specifically one and the same textbook to read from for all students within a given class setting. The question presenting itself is one of the suitability of this one textbook used in the content area for all students. Consequently, the content area teachers are accountable for the instructional reading levels of their students in their classrooms. To know the students' instructional reading levels is another essential prerequisite for effective and successful reading-learning instruction in the content area teaching. As attested to in the reading literature(3), ranges of reading ability found in classrooms at different grade levels show variable spreads between the best and poorest reader. Yet, all need to read in accordance with their own capabilities. Multi-level reading materials appear to be an answer within the teacher's reach in order to accommodate differing student instructional reading levels.

While the aspect of the reading ranges variability and the knowledge of student instructional reading levels has been brought to the reader's attention, space limits the writer to pursue in details this important factor influencing and determining success in the reading-learning process in the content areas. However, elsewhere the writer has been given thought to this subject(8).

Summary

Reading in the content area begins in grade one and is a gradual and continuous development of the reading skills through the grades and beyond. For the student to gain proficiency in this difficult and complex art, theoretical suggestions pared with actual classroom samples in content area instruction have been illustrated for the content area teacher's inquisitive perusal. For the content area teacher, the essential factors and their relationships and interrelationships as well as their influences towards student success or failure in content area reading-learning instruction have been discussed. It can be hoped when such an approach is more widely followed by the content area teachers, that our youths will more readily appreciate and enjoy the act of reading and its results.

References

1. Allen, J. and J. L. Betts, History: USA, Teacher Annotated Edition, American Book Co., New York, 1967, p.232.

2. Betts, E. A. and C. M. Welch, Up The Street And Down, Primer, Teacher Edition, American Book Co., New York, 1965, pp. 30 and 35.

3. Bond, G. L. and M. A. Tinker, Reading Difficulties: Their Diagnosis and Correction, Appleton-Century-Crofts, Inc., New York, 1957, p.37.

4. Bond, G. L., et al., A Call To Adventure, The Developmental Reading Series, Grade 7, Lyons and Carnahan, Chicago, 1962, p.133.

5. Leary, B. E., "Meeting Specific Reading Problems in the Content Fields", in: Reading in the High School and College, Forty-Seventh Yearbook, NSSE, University of Chicago Press, Chicago 37, Ill., 1948, p.166.

6. Marksheffel, N. D., Better Reading in the Secondary School, The Ronald Press, Co., New York, 1966, p.12.

7. Robinson, H. M., et al., Roads To Follow, Guide Book, Book 3, Part 1, Scott, Foresman and Co., Chicago, 1964, p.57.

8. Taschow, H. G., "Structional Reading Levels in Subject Area", Reading Improvement, Vol.4, No.4, 1967, pp.73-76.

9. Taschow, H. G., "Reading Improvement in Mathematics", in: Reading Improvement, Vol.6, No.3, (Winter 1969), p.63.